REMARKS

This amendment is responsive to the Official Action dated May 8, 2006. Claims 1-14 were rejected.

Claims 1 - 14 were pending in the application.

By way of this Amendment, the Applicant has amended claims 6 and 12.

Accordingly, claims 1-14 remain pending.

Petition for Extension of Time:

A petition for extension of time of 1 month along with the requisite fee accompanies this response.

Claim Rejections under 35 USC §112, Second Paragraph:

Claims 6 and 12 were rejected under 35 USC §112, second paragraph as being indefinite for listing chlorobenzene as a haloalkane.

Claims 6 and 12 have been amended to remove chlorobenzene from the listed compounds.

Withdrawal of the rejection is respectfully solicited.

Claim Rejections under 35 USC §102:

Claims 1-14 were rejected under 35 USC §102(b) as being anticipated by Yang et al USP 6881696.

The present invention is particularly characterized in step (iv) of claim 1 by further reacting the solid titanium complex catalyst, obtained from the reaction in step (iii), with a mixture of an aluminum compound and haloalkane or haloalkane.

Applicant submits that the method of claim 1 is substantially different from USP 6881696, and requests reconsideration based on the following comments.

Examiner asserts that step (ii) of Yang '696 reacts a magnesium solution with an hydroxyl group containing ester and a alkoxy containing silane. Contrary to the examiner's

assertion in the rejection, it is the Applicant's position that Yang '696 uses a boron compound having alkoxyl group in step (ii) (See Abstract of Yang '696).

Applicant's claim 1, step (ii) recites

"(ii) reacting the magnesium solution with ester compound having at least one hydroxyl group and silicon compound having alkoxy group;"

The abstract of Yang '696 recites:

"(2) reacting the magnesium solution with an ester compound having at least one hydroxyl group and a boron compound having at least one alkoxy group to produce a magnesium composition;"

Therefore Yang '696 and the present invention are different.

The Examiner also pointed out that when the solid titanium procatalyst further reacts with the haloalkane compound in step (iii) in the media, it would become identical to step (iv) of the present invention and therefore is the same as Yang '696.

Applicant disagrees and requests reconsideration.

In the catalyst preparation of the present invention, steps (iii) and (iv) are totally different and separate from each other, and each step is essential in the catalyst preparation. With respect to this, in order to support that step (iv) of the present invention is an essential step, the specification describes comparative examples 1 and 2, (which are similar to the catalyst preparation method of Yang '696), for comparison with Example 1, wherein comparative examples 1 and 2 eliminate step (iv) which includes the additional reaction with haloalkane. The comparative examples use haloalkane in step (iii) only.

As clearly seen from the Results of Table 1 of Example 1 and comparative examples 1 and 2, the comparative examples 1 and 2 where haloalkane is used only in step (iii), (further further reaction with haloalkane in step (iv) is eliminated), show particularly lower molecular weight distribution as compared to the results of Example 1 where haloalkane is used in both steps (iii) and (iv).

This clearly proves that it is not possible to achieve the wide molecular weight distribution intended in the present invention without step (iv) which includes a further reaction with haloalkane, even though haloalkane is used step (iii). Accordingly, this

comparison shows that the reaction of the solid titanium procatalyst with haloalkane of step (iii) in the media in Yang '696 is not the same as step (iv) of the present invention.

The reaction with the additional haloalkane in step (iv) is one of the characteristic technical features of the present invention and is patentably distinguishable from Yang '696.

Accordingly, it is submitted that Yang '696 does not anticipate claims 1-14 of the present invention. Withdrawal of the rejection is respectfully solicited.

Claim Rejections under 35 USC §103:

Claims 1-14 were rejected under 35 USC §103(a) as being unpatentable over Yang et al US2004030077 in view of Malpass USP 4657998 and Gelus USP 5990251.

Applicant disagrees, and requests reconsideration.

Generally, Yang '077 does not include the characteristic step (iv) of the present invention. Further regarding Malpass '977 and Gelus '251, while the haloalkane of step (iv) of the present invention is used in the preparation of the solid titanium complex catalyst, the halogenated hydrocarbon used in Malpass '977 and Gelus '251 is a compound added during olefin polymerization, as an independent compound regardless of a catalyst, not used in the preparation of the catalyst.

In other words, the haloalkane used in step (iv) of the present invention becomes one of the components constituting the main catalyst through the reaction with other components which also constitutes the main catalyst during the preparation of the main catalyst. In the meantime, the halogenated hydrocarbon of Malpass '977 and Gelus '251 functions as a halogentated hydrocarbon *per se* in the polymerization process. Therefore, the haloalkane of step (iv) of the present invention and the haloalkane of Malpass '977 and Gelus '251 have different functions in completely different steps, and thus they cannot correspond to each other.

Further Malpass '977 and Gelus '251 also do not disclose the concept of further use of haloalkane in step (iv) being additional to the use of haloalkane in step (iii) in the preparation of the solid titanium complex catalyst in the present invention, hence it is not reasonable for a person having ordinary skill in the art to find the present invention obvious through Yang '077, Malpass '977 and Gelus '251.

Referring to the Examples, the present invention provides comparative examples 1 and 2 in which the catalysts are prepared by the same process as in Yang '077, for comparison with Example 1 according to the present invention. The results, which estimate the catalyst obtained from the comparative examples 1 and 2 and polymers obtained from polymerization using the catalyst, such as catalyst activity, and MI and molecular weight distribution of the resulted polymers are represented in Table 1.

Specifically, the catalyst activity of Example 1 of the present invention was 5.7, MI of the polymer was 4.3 and the molecular weight distribution of the polymer was 39.2. In comparison, the results of the comparative examples 1 and 2 showed the catalyst activity of 5.0 and 5.1, respectively, MI of 2.1 and 2.3, respectively, and a molecular weight distribution of 33.5 and 37.2 respectively. From these results, it can be confirmed that the catalyst of the present invention has superior catalyst activity to the catalyst of the comparative examples 1 and 2. Further, it is found that a wide molecular weight distribution is achieved in the polymer produced by using the catalyst of the present invention, as compared to that of the molecular weight distribution of the comparative examples 1 and 2.

In summary, step (iv) of the catalyst preparation of the present invention is not disclosed in any of Yang '077, Malpass '977 or Gelus '251. Further, a construction which uses haloalkane in both steps (iii) and (iv) as in the present invention is never the same as a construction which uses haloalkane only in step (iii). Finally, the catalyst prepared by the construction which uses haloalkane in both steps (iii) and (iv), as in the present invention, has significantly improved effect as compared to the catalyst prepared by the methods described in Yang '077, Malpass '977 and Gelus '251.

For these reasons, the Applicant believes that claims 1-14 as currently presented are not obvious in view of the cited references.

Conclusions:

Claims 1-14 are thus believed to define patentable subject matter over the cited prior art, and the application is thus believed to be in condition for allowance.

Corresponding action is respectfully solicited.

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Respectfully submitted,

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